



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Offic
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
|-----------------|-------------|----------------------|---------------------|
| 09/632,388 | 08/03/00 | LI | S 850063.529 |

LISA K JORGENSEN
SGS THOMSON MICROELECTRONICS INC
1310 ELECTRONICS DRIVE
CARROLLTON TX 75006

MM02/0327

| | |
|----------|--|
| EXAMINER | |
| EATON, K | |

ART UNIT PAPER NUMBER

2823

DATE MAILED:
03/27/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

| | | |
|------------------------------|---------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/632,388 | LI ET AL. |
| | Examiner Kurt M. Eaton | Art Unit 2823 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 11 January 2001.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-4, 6, 7, 9 and 10 is/are pending in the application.

4a) Of the above claim(s) 11-19 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-4, 6, 7, 9 and 10 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are objected to by the Examiner.

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) Notice of References Cited (PTO-892)

16) Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .

18) Interview Summary (PTO-413) Paper No(s) _____.

19) Notice of Informal Patent Application (PTO-152)

20) Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 1-10 in Paper No. 5 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 11-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 5.

Claim Rejections -35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 6, 7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo et al..

In re claims 1, 6, 7, 9, and 10, Kuo et al. (herein referred to as Kuo) shows in Figures 3 and 4 a patterned oxide layer (11) over a substrate (10); an undoped silicate glass layer (18) over the patterned oxide layer; an unplanar borophosphorous silicate glass layer (20) over the undoped silicate glass layer; a planarized PE-TEOS layer (22) over the borophosphorous silicate glass layer,

wherein the layers of the undoped silicate glass, borophosphorous silicate glass, planarized PE-TEOS layers together form a pre-metal dielectric stack {column 2, line 56 - column 3, line 7}.

Kuo does not show wherein planarized PE-TEOS layer includes a planarized layer of PE-TEOS over at least a portion of the layer of the borophosphorous silicate glass, and not overlaying at least a portion of the borophosphorous silicate glass layer and a layer of PE-TEOS overlaying the planarized layer of PE-TEOS and directly overlaying and being in contact with at least a portion of the borophosphorous silicate glass region.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to consider the planarized PE-TEOS layer of Kuo as two separate layers (i.e., first a planarized layer of PE-TEOS over at least a portion of the layer of the borophosphorous silicate glass and not overlaying at least a portion of the borophosphorous silicate glass layer and a second layer of PE-TEOS overlaying the planarized layer of PE-TEOS and directly overlaying and being in contact with at least a portion of the borophosphorous silicate glass region) since separating what was formerly a singular layer into separate layers when: (a) the differences between using a single insulating layer made of one kind of material and two consecutively formed layers made of identical material; and (b) any unexpected results of providing a planar interface between the two layers at one elevation over the substrate as opposed to non-planar interface at another elevation are not apparent would involve only routine skill in the art.

In re claim 2, Kuo shows wherein the borophosphorous silicate glass has a thickness between approximately 2,000 and 8,000 Å {column 2, line 56 - column 3, line 7}.

In re claim 3, Kuo shows wherein the second layer of PE-TEOS is planar {see Figure 4}.

In re claim 4, Kuo substantially discloses the invention as claimed but fails to show wherein a combined thickness of the oxide layer and the pre-metal dielectric stack is less than approximately 15,000 angstroms.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the combined thickness of the oxide layer and the pre-metal dielectric stack such that it was less than approximately 15,000 Å since thicknesses of dielectric materials are well known processing variables and discovering the optimum or workable range involves only routine skill in the art.

| Response to Arguments | Conclusion |
|-----------------------|------------|
| | |

5. Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

6. Paper related to this application may be submitted directly to Art Unit 2823 by facsimile transmission. Papers should be faxed to Art Unit 2823 via the Art Unit 2823 Fax Center located in Crystal Plaza 4, room 4C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2823 Fax Center number is (703) 308-7722 or -7724. The Art Unit 2823 Fax Center is to be used only for papers related to Art Unit 2823 applications.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Kurt Eaton** at (703) 305-0383 and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via kurt.eaton@uspto.gov.


OLIK CHAUDHURI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER